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Yoshitaka Sato

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EXAMINER

PILKINGTON, JAMES

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/523,708
Filing Date: September 06, 2005
Appellant(s): SATO ET AL.

Curtis H. Castleman, Jr.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 21, 2008 appealing from the Office action mailed April 4, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2001/0039226	Ito	11-2001
6,132,328	Kinoshita et al.	10-2000

5,908,520	Kodama	6-1999
5,674,143	Kumazaki et al.	10-1997

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A. Claims 1-7, 9-11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takehiko Ito, USP 2001/0039226, in view of Kumazaki, USP 5,674,143.

Re clms 1 and 3, Ito ('226) discloses a transmission belt (60) comprising: a belt body (62) which is molded from a stock rubber; aramid fibers (80, 114) that are intermixed in said belt body (62) and oriented in a predetermined direction of said belt body (p 3, paragraphs 51, 52, 53) ; and polyester fibers (80, 114) that are intermixed in said belt body (62) and oriented in said predetermined direction (p 3, paragraphs 51, 52, 53) ; wherein said polyester fibers are longer than said aramid fibers(p 3, paragraphs 51, 52, 53) .

Ito does not disclose that the belt body is made of both aramid fibers and polyester fibers (clm 1) and that the fibers make up 5-30 parts by weight of the stock rubber of the belt (clm 3).

Kumazaki teaches that a belt can be made of a combination of aramid and polyester fibers (C4/L43-55) and that the fibers make up 5-30 parts by weight of the

stock rubber of the belt (C4/L56-60) for the purpose of reducing the noise in the belt and increase durability (C5/L1-9).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Ito and provide a belt can be made of a combination of aramid and polyester fibers and having the fibers make up 5-30 parts by weight of the stock rubber, as taught by Kumazaki, for the purpose of reducing the noise in the belt and increase durability.

Re clm 2, Ito ('226) discloses the aramid fibers (114) and polyester fibers (114) are oriented in a width direction of said belt body (p 3, paragraph 53).

Re clm 4, Ito ('226) discloses length of said aramid fibers (114) is less than 3 mm (p 3, paragraph 52, fibers range from 1 to 10 mm).

Re clm 5, Ito ('226) discloses the length of said polyester fibers (114) is less than 5 mm (p 3, paragraph 52, fibers range from 1 to 10 mm).

Re clm 6, Ito ('226) discloses a rubber component of said stock rubber is one of ethylene propylene copolymer, ethylene propylene, diene nitrile butadiene rubber, hydrogenated terpolymer, nitrile butadiene rubber, and chloroprene rubber (p 3, paragraph 51).

Re clm 7, Ito ('226) discloses the said polyester fibers are subjected to a treatment involving coating with a resorcinol-formalin-latex (p 3, paragraph 55).

Re clm 9, Kumazaki ('143) discloses that the aramid fibers can be para-aramid fibers (C4/L48-49).

Re clm 10, Ito ('226) discloses said transmission belt is a V-belt (60, see figure 3, sides at angle).

Re clm 11, Ito ('226) discloses said V-belt (60) is a cogged V-belt (see figure 1, 72,74).

Re clms 13 and 14, Ito ('226) discloses a transmission belt (60) comprising: a belt body (62) which is molded from a stock rubber comprising a top rubber layer (82), a bottom rubber layer (80) and a cord (84) extending in the longitudinal direction of the belt embedded between the top rubber layer (82) and the bottom rubber layer (80) said bottom layer (80) having cogs (70 and 72); aramid fibers (80, 114) that are intermixed in said belt body (62) and oriented in a predetermined direction of said belt body (p 3, paragraphs 51, 52, 53) ; and polyester fibers (80, 114) that are intermixed in said belt body (62) and oriented in said predetermined direction (p 3, paragraphs 51, 52, 53); wherein said polyester fibers are longer than said aramid fibers(p 3, paragraphs 51, 52, 53) (clm 13); the length of said aramid fibers (114) is less than 3 mm (p 3, paragraph 52, fibers range from 1 to 10 mm) and the length of said polyester fibers (114) is less than 5 mm (p 3, paragraph 52, fibers range from 1 to 10 mm)(clm14).

Ito does not disclose that the belt body is made of both aramid fibers and polyester fibers (clm 13) and that the fibers make up 5-30 parts by weight of the stock rubber of the belt (clm 14).

Kumazaki teaches that a belt can be made of a combination of aramid and polyester fibers (C4/L43-55) and that the fibers make up 5-30 parts by weight of the

stock rubber of the belt (C4/L56-60) for the purpose of reducing the noise in the belt and increase durability (C5/L1-9).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Ito and provide a belt can be made of a combination of aramid and polyester fibers and having the fibers make up 5-30 parts by weight of the stock rubber, as taught by Kumazaki, for the purpose of reducing the noise in the belt and increase durability.

B. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito '226 in view of Kumazaki '143 and further in view of Kodama, USP 5,908,520.

Ito in view of Kumazaki discloses all of the claim limitations (as described above).

Ito in view of Kumazaki does not disclose said polyester fiber is one of PET fiber.

Kodama teaches PET fiber to be a polyester fiber (c2, l 12-13). PET fiber has a higher modulus of elasticity than other fibers. This allows for an increase in strength of the composition that the PET fiber is a component of.

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to use PET fiber as the polyester fiber, as taught by Kodama, in the v-belt of Ito in view of Kumazaki, to increase the modulus of elasticity of the belt.

C. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito '226 in view of Kumazaki '143 and further in view of Kinoshita, USP 6,132,328.

Ito in view of Kumazaki discloses all of the claim limitations (as described above).

Ito in view of Kumazaki does not disclose that the stock rubber is formed of EPDM, in which an organic metal salt is mixed.

Kinoshita teaches making the stock rubber of EPDM in which an organic metal salt is mixed (C3/L23-43) for the purpose of providing a belt that exhibits good heat resistance and ozone resistance (C3/L30-33).

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to make the stock rubber of EPDM in which an organic metal salt is mixed, as taught by Kinoshita, for the purpose of providing a belt that exhibits good heat resistance and ozone resistance.

(10) Response to Argument

- A. Re claims 1-7, 9-11, 13 and 14 the Appellant argues that (see pages 6-16):
- The combination of Ito and Kumazaki does not result in a blend of longer polyester fibers with shorter aramid fibers in the belt body (page 7)
 - The combination is based on hindsight reconstruction and no teaching, suggestion, motivation or KSR rationale is present in the rejection (page 8-12)
 - Kumazaki is non-analogous since it does not relate to the particular problem with which the Appellant is concerned (durability) (page 11-12)
 - Ito does not disclose that the fibers are oriented in the width direction of the belt as recited in claim 2 (page 12)
 - Ito does not disclose that the polyester fibers are subject to an RFL coating treatment as recited in claim 7 (page 13-14)

- The Examiner has ignored the limitation of "a single strand cogged v-belt" as recited in claim 13 (page 15)

Ito discloses the use of polyester fibers and aramid fibers and states that the length of the polyester fibers, when used, is longer than the aramid fibers (see paragraph 0052) but does not disclose that the fibers are used in combination. Kumazaki is used to teach using a blend of fibers. Kumazaki states aramid fibers can be used in combination with polyester fibers (see C4/L51-55). Ito in view of Kumazaki discloses all of the claim limitation of the claim and therefore renders the claim obvious.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case knowledge that a blend of fibers consisting of aramid and polyester was known in the art and clearly disclosed in Kumazaki. In addition, as noted in the rejection above, Kumazaki does indeed provide motivation. Throughout the reference (C1/28-31 and C5/L1-18 for example) Kumazaki states that using the fibers results in a belt that reduces noise levels and can be installed in a system with high tension

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(durable). The latter of the two reasons, durability, is what the Appellant bases their hindsight argument upon.

It has been held that a prior art reference must either be in the field of Appellant's endeavor or, if not then be reasonably pertinent to the particular problem with which the Appellant is concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Kumazaki is in the field of Appellant's endeavor, the field of transmission belts, and is pertinent to the particular problem, making a durable belt, Kumazaki contains and added benefit of reducing noise while being durable. The Appellant elaborates on this on page 14 by stating that one of ordinary skill would not go to a different genus of belt. In response, both Ito and Kumazaki state in their titles that both belts are "power transmission belts" and both use cogged surfaces to transmit the power and therefore are within the same belt family and/or genus.

Regarding the fibers being oriented in the width direction Ito discloses line "L" which is the longitudinal length of the belt. Ito states in paragraph 53 that the fibers maybe aligned orthogonal, ninety degrees/perpendicular, to the longitudinal line thus making the fibers extending in the lateral direction of the belt. The lateral direction of the belt is the width direction.

Regarding the RFL treatment, Ito discloses that the fabric cloth is subject to an RFL treatment. The fabric cloth is made of polyester fibers as stated in lines 1-2 of paragraph 55. Therefore, Ito discloses that polyester fibers can be treated with an RFL treatment when used in a rubber composition.

In response to Appellant arguments that the examiner has ignored a limitation, the recitation "a single strand cogged v-belt" (page 10) has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). The Appellant states that this limitation is again stated in the body of the claim, however the only recitation in the body is that the belt has cogs which Ito discloses as stated above. The limitation not addressed is "a single strand v-belt" since it is not recited in the body of the claim and the invention can be employed in multi strand belts.

B. The Appellant argues that Kodama is not a valid teaching reference PET fibers in a belt.

Kodama teaches inserting PET cords which are made of PET fibers into a fiber cord belt reinforcing layer (see title). Kodama teaching is related to the particular

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problem with which the Appellant is concerned which is increasing the strength/durability of a belt member through the use of a PET cord/fiber in the rubber of the belt.

C. The Appellant argues that Kinoshita an EPDM stock rubber that includes an organic metal salt in the rubber and it is not used a scooter transmission belt. The Appellant concedes that Kinoshita does disclose an organic metal salt in a rubber composition (see page 17).

Kinoshita disclose that an example of his stock rubber is EDPM in column 3 lines 37-39. In addition the recitation of a scooter is merely intended use since no structural limitations of the scooter are claimed and the transmission belt can be employed in a number of different transmissions.

D. Regarding the evidence of unexpected results submitted in the declaration by Paul N. Dunlap: The Examiner has found the declaration to be unpersuasive for a number of reasons. 1) Paragraph 7 states that using short fibers and fiber length results in unpredictable physical properties, one particular property being tensile strength. Then in later paragraphs when talking about the empirical results the declaration makes statements that the result of the different lengths was contrary to expectations. How can the results be contrary to the expectations when it was stated prior that the results of different lengths in unpredictable? 2) Paragraph 8 states that a unique combination of fibers is best determined by experimentation and is not

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predictable from first principles. Since Ito and Kumazaki disclose the structure are the particular examples in which the Appellant uses as comparisons in the remarks not a simple matter of discovering the optimum or workable ranges?

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/J. P./

James Pilkington

Examiner, Art Unit 3682

Conferees:

Richard Ridley

/Richard WL Ridley/

Supervisory Patent Examiner, Art Unit 3682

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